Heat Stress

Hot work environments

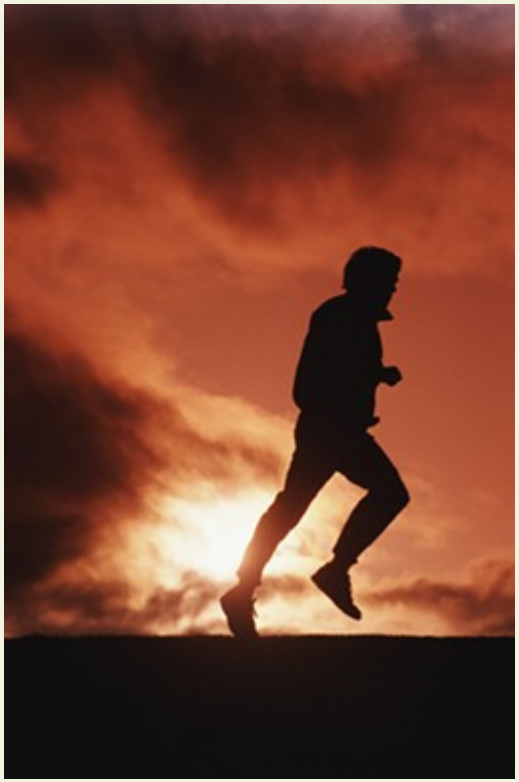
- Outdoor work in hot weather
- Foundry work
- Smelting
- Brick-firing, ceramics, or glass manufacture

Hot work environments

- Rubber manufacture
- Work in bakeries, confectioneries, kitchens
- Laundry operations

Risk factors

- Not everyone is affected equally
  - age, weight, physical fitness
  - metabolism, medications, use of alcohol/drugs
- Air temperature



Risk factors

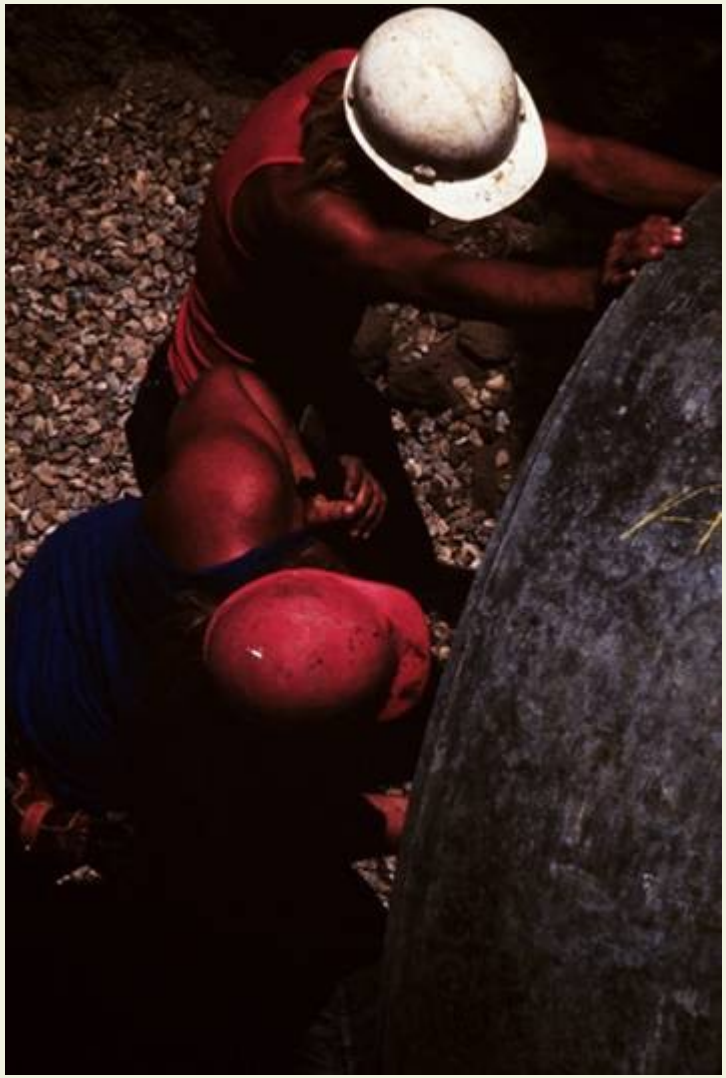
- Humidity
- Direct sun
- Radiant heat sources
- Clothing

How heat causes fatigue

- Blood circulates to upper layers of skin
- Less blood is available to provide energy to active muscles, brain, internal organs

How heat causes fatigue

- Performance, coordination, alertness all decline
- Gradually adjust to working in hot conditions



Heat rash

- Results from body's natural cooling mechanisms
- Body heat is released through sweating
- If sweat ducts become plugged, a rash can develop

Heat rash

- Rash is very uncomfortable, can become infected
- Rest in a cool area
- Bathe and dry the skin ASAP

Fainting

- Fainting can be a reaction to the heat

- As blood is circulated to extremities, it can accumulate in the lower part of the body

Fainting

- Fainting can occur if the brain does not get enough blood

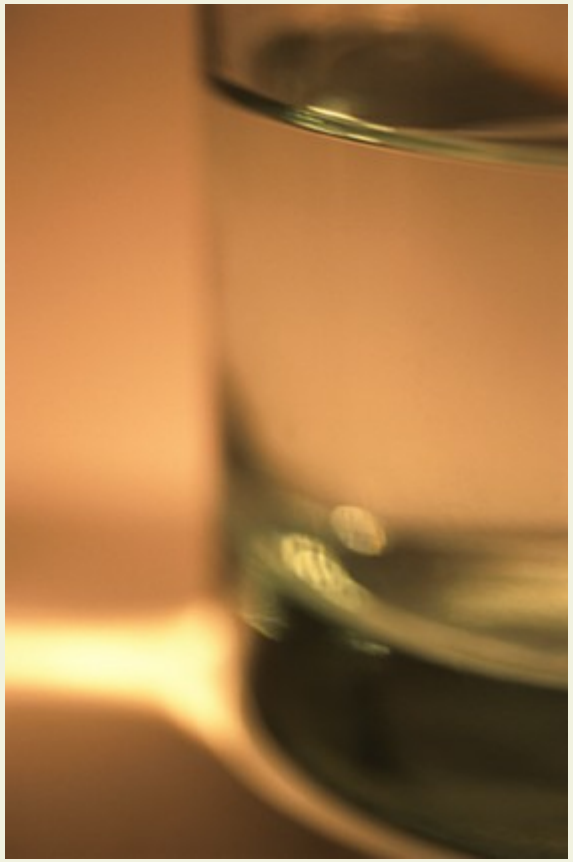
- Lie down in a cool area

Muscle cramps

- Occur in tired muscles when worker sweats profusely and drinks large amounts of water
- Sweating removes salt from the body
- Drinking dilutes body fluids

Muscle cramps

- Low salt levels can cause painful spasms
- Too much salt can also cause cramps
- Drink 5 to 7 ounces of water every 15 to 20 minutes



Muscle cramps

- Thirst is not a reliable indicator of the need for water in a hot environment

- Avoid drinking beverages containing caffeine or alcohol

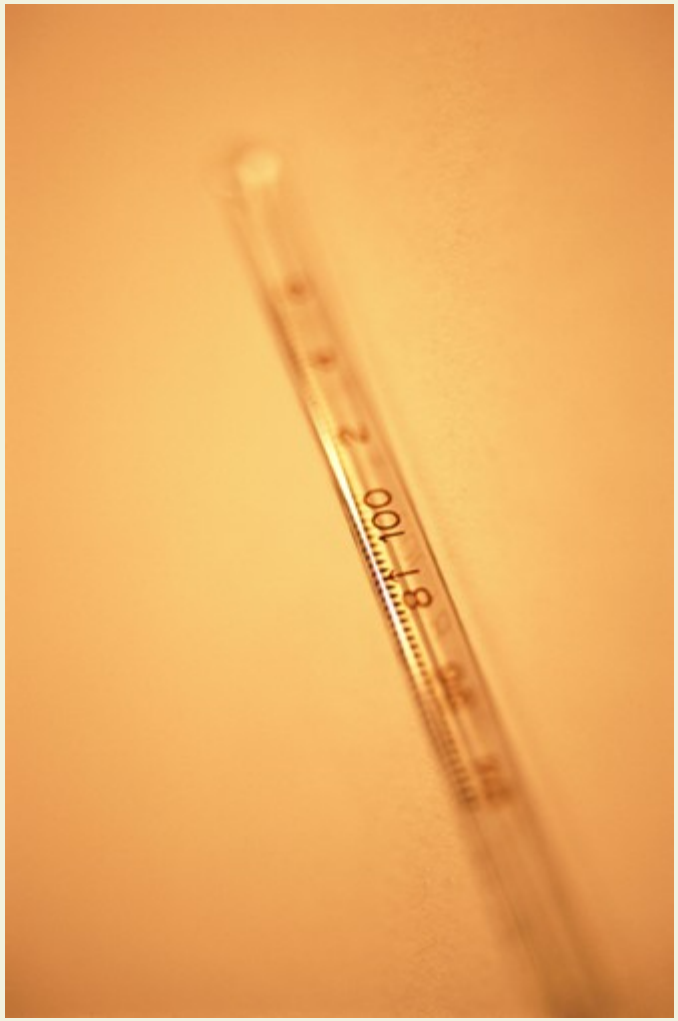
Heat exhaustion

- Results when a person has lost large amounts of fluid by sweating

- Symptoms resemble early heat stroke
  - fatigued
  - giddy
  - nauseous
  - headache

Heat exhaustion

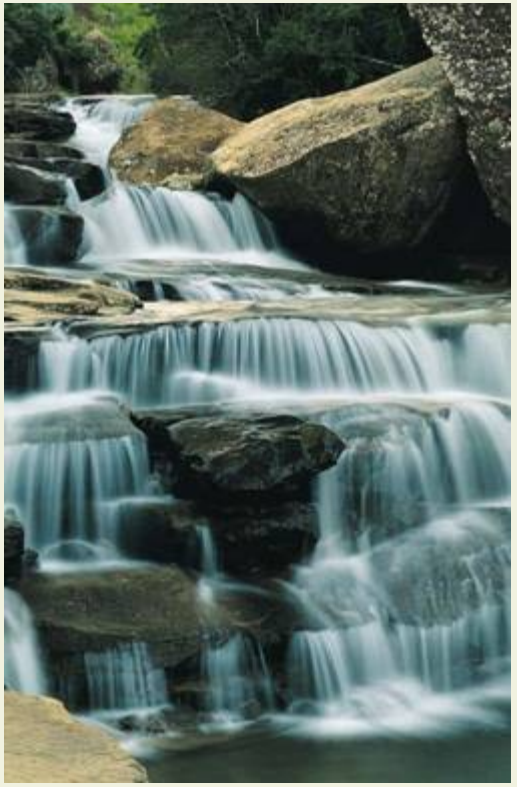
- Person sweats
- Skin is clammy and moist
- Body temperature remains at or near normal



Heat exhaustion

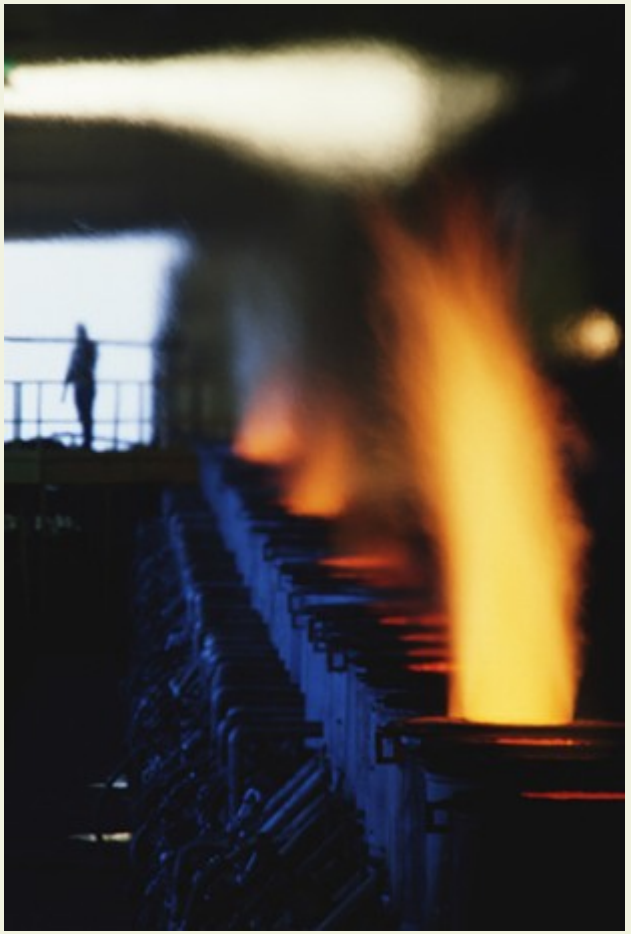
- Victim may vomit/lose consciousness in extreme cases

- Move victim to cool place and give plenty of liquids



Heat stroke

- Life-threatening condition
- Occurs when body's temperature regulatory system fails
- Sweating becomes inadequate to remove excess heat



Heat stroke

- Skin is hot and dry
- Body temperature is 105 degrees F or higher
- Victim is mentally confused or delirious

Heat stroke

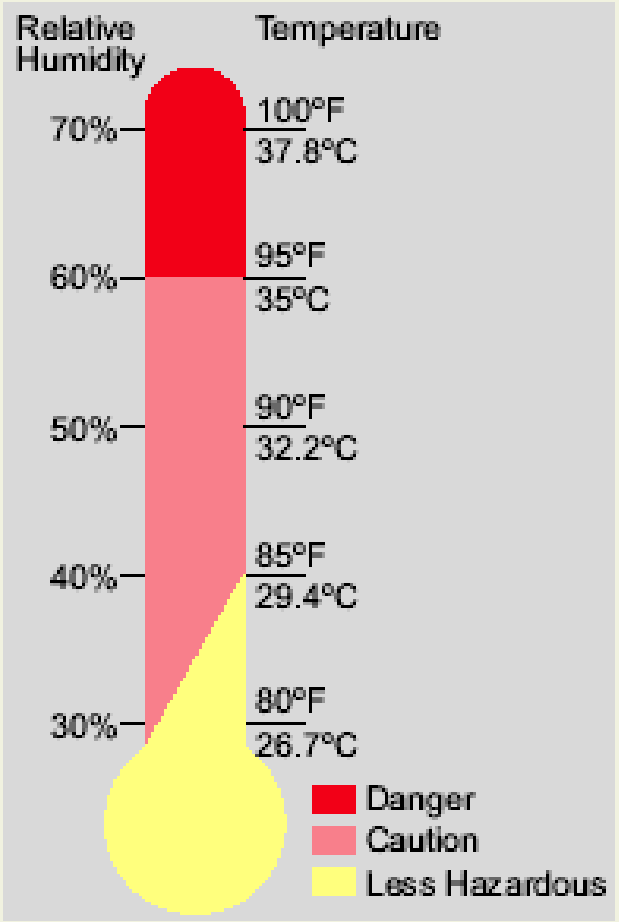
- Victim may have convulsions or become unconscious
- Get immediate medical attention
- Move victim to cool area

Heat stroke

- Soak clothing in water
- Fan the body
- Never leave unattended

Measuring/evaluating heat exposures

- Heat index system
- Health and safety agency testing



Measuring/evaluating heat exposures

- **Work classifications:**
  - **light hand work**
  - **heavy hand work**
  - **heavy work with one arm**
  - **light work with two arms**
  - **moderate work with the body**
  - **heavy work with the body**

Controlling heat stress

- **Engineering controls**
- **Work practice controls**
- **PPE**

Controlling heat stress

- Take intermittent rest periods with water breaks
- Use relief workers
- Pace the work

Controlling heat stress

- Reduce physical demands
- Use cool recovery or rest areas
- Schedule work for cooler times of day

Conclusion

For additional information, please call the RIA Garrison Safety Office at extension 2-1380